COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
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Commissioner

APPROVAL FOR REMEDIAL USE

Pursuant to Title 5, 310 CMR 15.000

Name and Address of Applicant:

American Manufacturing Company, Inc.
PO Box 549
Manassas, VA 20108

Trade name of technology and model: **PERC-RITE Drip Dispersal System, Models QM, ASD-15, ASD-25 & ASD-40** (hereinafter called the "System"). A schematic drawing of a typical System, a Design Manual and a technology checklist are attached and are a part of this Approval.

Transmittal Number: W064363
Date of Issuance: January 27, 2006
Expiration Date: January 27, 2011

Authority for Issuance

Pursuant to Title 5 of the State Environmental Code, 310 CMR 15.000, the Department of Environmental Protection hereby issues this Approval for Remedial Use to: American Manufacturing Company, PO Box 549, Manassas, VA 20108 (hereinafter "the Company"), approving the System described herein for remedial use in the Commonwealth of Massachusetts. Sale and use of the System are conditioned on compliance by the Company and the System owner with the terms and conditions set forth below. Any noncompliance with the terms or conditions of this Approval constitutes a violation of 310 CMR 15.000.

_____ January 27, 2006

Glenn Haas, Director — Date
Division of Watershed Management
Department of Environmental Protection

I. Purpose

1. The purpose of this approval is to allow Remedial Use of the System in Massachusetts with the necessary permits and approvals required by 310 CMR 15.000.

2. With the necessary permits and approvals required by 310 CMR 15.000, this Approval for Remedial Use authorizes the use and installation of the System in Massachusetts.

3. The System may only be installed where conditions meet the criteria of 310 CMR 15.284(2). The System is used to dispose of wastewater from an alternative system approved in accordance with 310 CMR 15.280 through 15.289 with effluent discharge concentrations that meet or exceed secondary treatment standards of 30 mg/L biochemical oxygen demand (BOD_5) and 30 mg/L total suspended solids (TSS)

4. This Approval for Remedial Use allows the use of the System where the local approving authority finds that the System is for upgrade of a failed, failing or nonconforming system. The Title 5 design flow for the facility must be less than 10,000 gallons per day.

II. Design and Construction Standards

1. The System is a pressure distributed subsurface wastewater drip dispersal (disposal) system that replaces a soil absorption system (SAS) designed in accordance with 310 CMR 15.000. The System is designed to distribute effluent from a treatment system and discharge it at a depth of at least 6 inches below finished grade; it includes a pump chamber, a filter module/hydraulic unit and drip dispersal zone(s). The dispersal zone includes small diameter flexible polyethylene tubing with pressure compensating emitters located at two foot spacing within the tubing. The emitters operate on a pressure differential across the emitter. Effluent wastewater is discharged in small doses from the emitters. Dispersal field dosing is timed and controlled electronically to provide pre-programmed volumes of effluent for discharge to each dispersal zone(s). The System includes a return line that allows periodic flushing of the dispersal tubing. All drip zone supply and return pipes that are maintained filled with effluent after a pump cycle shall be buried below the frost line or properly insulated. All drip tubing and shallow manifolds shall be designed to drain into the soil upon completion of the pump cycle. The System may include single (the QM model) or two-stage (the ASD models) automatic backwashing disc filters within the filter module and air vents in each dispersal zone. Each zone shall have air release valves at the high points of manifolds and check valves on each return manifold. The system shall be equipped with a totalizing flow meter.

2. The System may be installed in the A, B or C soil horizon at a depth of at least 6 inches below the finished grade, or in fill material meeting the specifications at 310 CMR 15.255(3).

3. All access ports and manhole covers shall be installed and maintained at grade to allow for maintenance of the System.

4. The control panel including alarms and controls shall be mounted in a location always accessible to the System operator.

5. The System may be installed in soils with a percolation rate of up to 90 minutes per inch (MPI). The System shall not be installed in Class IV soils as defined in 310 CMR 15.243.

6. Effluent loading rates shall be as specified in 310 CMR 15.242. Effluent loading in soils with percolation rates greater than 60 MPI shall not exceed 0.1 gallons per day per square foot.

7. No System shall be designed and constructed with less than 400 linear feet of drip tubing or a soil absorption system area of less than 800 square feet

8. The System is equivalent to a pressure distribution system designed in accordance with the Department's Pressure Distribution Guidance.

9. The 310 CMR 15.231(7) requirement that pumps must be capable of passing a 1.25 inch solid is not applicable under this approval.

10. The System does not require a five foot over dig as indicated at 310 CMR 15.255(5).

11. The System includes the following:

    a A pump chamber and pump(s) capable of providing pressure of 10-60 psi throughout the dispersal zone(s). Each drip dispersal zone shall be dosed a minimum of four times per day, or as recommended by the Company. Duplex pumping shall be provided for facilities with design flows of 2000 gpd or greater. The pump chamber, combined with available storage in the pretreatment units, shall provide at least one-day storage as required by 310 CMR 15.231.

    b Timed dosing for the drip system with a timer controller capable of operating the system during peak flow events without high-level alarms.

    c Automatically backwashed filter(s) capable of screening particles larger than 115 microns prior to discharge of the effluent to the drip tubing. Filter(s) backwash shall be conveyed back to a separate settling tank or to the septic tank.

    d Air vents in a zone shall be placed at a higher elevation than the drip tubing in that zone but below the ground surface. Air vents shall be accessible from finished grade and insulated to protect from freezing.

    e Drip tubing lines installed as level as possible on contour and at least 6 inches below finished grade. Drip line spacing is typically 24 inches with drip tubing emitters spaced 24 inches on center. More than the minimum length of tubing may be utilized within a properly sized soil absorption system. When the drip lines spacing is greater than 24 inches by 24 inches, the size of the dispersal field shall be increased so that the total linear feet of tubing is equal to the length

that would have been installed in the standard 24 inch by 24 inch scenario. The drip dispersal tubing shall be automatically forward flushed after a pre-programmed number of dosing cycles as determined by the Company. Flushing velocity shall be at least 2 feet per second at the distal end(s) of each drip dispersal lateral within a zone. All drip line flushwater shall be conveyed back to a separate settling tank or to septic tank.

f An effective effluent dispersal area calculated using the total area of the drip tubing system including a one-foot addition on each side or two square feet per foot of drip tube when tubing is spaced two feet apart. No sidewall credit shall be given for this System.

g The dispersal area shall not be installed under a paved surface.

h No change in existing surface slope over the dispersal field is required to comply with 310 CMR 15.240(10).

12. All System control units, valve boxes, drip dispersal lines, conveyance lines and other System appurtenances shall be designed and installed to prevent freezing per the Company's recommendations.

13. The System designer shall provide plans and specifications for all proposed System installations according to 310 CMR 15.220 for submittal to the approving authority that include required standard details and installation instructions.

14. Drip tubing may be installed with a vibratory plow, a static plow, a narrow trencher (<6" width), by hand trenching, or by scarifying the surface and bedding the drip tubing in clean sand meeting the requirements for fill material in Title 5 at 310 CMR 15.255(3) with cover consisting of sand and topsoil meeting the 6 to 12 inch depth requirement. Vegetative cover must be replaced for installations where it is removed or buried during installation.

15. Drip tubing shall not be installed when soils are frozen or saturated.

16. Prior to System start up, a clean water test of the System shall be performed in the presence of the Company's representative and the approving authority to check for leaks and to ascertain and verify system design flush and dose rates.

17. System unit malfunction and high water alarms shall each be connected to an independent power source from the operating pump(s) run from the main power source of the facility

18. For Systems with a design flow of 2,000 gpd or greater, the System shall be equipped to provide a flow meter and automatic remote telemetric notification to the operation and maintenance (O&M) provider.

III. **Allowable Subsurface Drip Soil Absorption Design**

1. Reduction of the Required Separation Distance to High Groundwater Elevation - An Applicant is eligible for a reduction in separation (four feet in soils with a recorded percolation rate of more than two minutes per inch or five feet in soils with a recorded percolation rate of two minutes or less per inch) between the bottom of the dispersal tubing and the high groundwater elevation, where all of the following conditions are met. Accordingly, in approving design and installation of the System by a particular Applicant, the local approving authority may allow a reduction in the required separation (four feet in soils with a recorded percolation rate of more than two minutes per inch or five feet in soils with a recorded percolation rate of two minutes or less per inch) between the bottom of dispersal tubing and the high groundwater elevation, provided that all of the following conditions are met:

   A. A minimum two foot separation (in soils with a recorded percolation rate of more than two minutes per inch) or a minimum three foot separation (in soils with a recorded percolation rate of two minutes or less per inch) between the bottom of the dispersal tubing and the high groundwater elevation is maintained.

   B. No reduction in the required SAS size is allowed.

   C. No reduction in the required four feet of naturally occurring pervious material is allowed unless the Applicant has demonstrated that the four foot requirement cannot be met anywhere on the site. Any such reduction must first be approved by the local approving authority and then approved by the Department pursuant to 310 CMR 15.284.

   D. Where full compliance with all of the minimum set back distances in 310 CMR 15.211 is not feasible, the local approving authority may allow a reduction under a local upgrade approval in accordance with 310 CMR 15.405 (1) (a), (b), (f), (g), and (h).

   E. Where full compliance with all of the minimum set back distances in 310 CMR 15.211 is not feasible, even taking into account provisions for local upgrade approval as described above or as described in this approval letter, then pursuant to 310 CMR 15.410, the Applicant first must obtain variance(s) from the local approving authority and then approval of the Department.

2. Reduction of the Requirement for Four Feet of Naturally Occurring Pervious Material – An Applicant is eligible for a reduction in the required four feet of naturally occurring pervious material in an area of no less than two feet of naturally occurring pervious material, where all of the following conditions are met. Accordingly, in approving design and installation of the System by a particular Applicant, the local approving authority may allow a reduction in the required four feet of naturally occurring pervious material in an area with no less than two feet of naturally occurring pervious material, provided that all of the following conditions are met:

A. The Applicant has demonstrated that the four foot requirement cannot be met anywhere on the site and that easements to adjacent property on which a system in compliance with the four foot requirement could be installed have been requested but cannot be obtained; and that a shared system is not feasible.

B. No reduction in the required SAS size is allowed.

C. No reduction in the required separation (four feet in soils with a recorded percolation rate of more than two minutes per inch or five feet in soils with a recorded percolation rate of two minutes or less per inch) between the bottom of SAS and the high groundwater elevation is allowed unless such a reduction is first approved by the local approving authority and then approved by the Department pursuant to 310 CMR 15.284.

D. Where full compliance with all of the minimum set back distances in 310 CMR 15.211 is not feasible, the local approving authority may allow a reduction under a local upgrade approval in accordance with 310 CMR 15.405 (1) (a), (b), (f), (g), and (h).

E. Where full compliance with all of the minimum set back distances in 310 CMR 15.211 is not feasible, even taking into account provisions for local upgrade approval as described above or as described in this approval letter, then pursuant to 310 CMR 15.410, the applicant first must obtain variance(s) from the local approving authority and then approval of the Department.

IV. General Conditions

1. All provisions of 310 CMR 15.000 are applicable to the use of this System, the System owner and the Company, except those that are varied by the terms of this Approval.

2. All sample analysis must be conducted by an independent U.S. EPA or DEP approved testing laboratory, or a DEP approved independent university laboratory. It is a violation of this Approval to falsify any data collected, to omit any required data or to fail to submit any report required by such plan.

3. The facility served by the System and the System itself shall be open to inspection and sampling by the Department and the local approving authority at all reasonable times.

4. In accordance with applicable law, the Department and the local approving authority may require the owner of the System to cease operation of the system and/or to take any other action as it deems necessary to protect public health, safety, welfare and the environment.

5. The Department has not determined that the performance of the System will provide a level of protection to public health and safety and the environment that is at least equivalent to that of a sewer system. No System shall be installed, upgraded or expanded, if it is feasible to connect the facility to a sanitary sewer, unless as allowed by 310 CMR 15.004. When a sanitary sewer connection becomes feasible, the facility served by the System shall be

connected to the sewer, within 60 days of such feasibility, and the System shall be abandoned in compliance with 310 CMR 15.354, unless a later time is allowed, in writing, by the approving authority.

6. Design, installation and operation shall be in strict conformance with the Company's DEP approved plans and specifications, 310 CMR 15.000 and this Approval.

V. Conditions Applicable to the System Owner

1. The System is approved for the treatment and disposal of sanitary sewage only. Any wastes that are non-sanitary sewage generated or used at the facility served by the System shall not be introduced into the System and shall be lawfully disposed.

2. Effluent discharge concentrations from the alternative treatment unit that discharges to the System shall meet or exceed secondary treatment standards of 30 mg/L BOD_5 and 30 mg/L TSS. The effluent pH shall not be less than 6.0 or more than 9.0 unless approved by the Department.

3. Any effluent samples shall be taken at a flowing discharge point, i.e. pipe entering a pump chamber or other Department approved location. Any required influent sample shall be taken at a point that will provide a representative sample of the influent. Influent sampling locations shall be determined by the system designer, subject to written approval by the Department.

4. The System owner shall have the Company or its designee conduct an intended use review of the System prior to the sale of any System receiving nonresidential flow or a System with a design flow of 2,000 gpd or greater to ensure that the proposed use of the System is consistent with the unit’s capabilities.

5. Operation and Maintenance Agreement:

   A. Throughout its life, the System owner shall operate and maintain the System in accordance with this Approval, the designer's operation and maintenance requirements, and the Company's approved procedures and sampling protocol. To ensure proper operation and maintenance (O&M), the System owner shall enter into an O&M agreement. No O&M agreement shall be for less than one year.

   B. No System shall be used until an O&M agreement is submitted to the approving authority which:

      i. Provides for the contracting of a person or firm competent in providing services, trained by the Company as provided in Section VI (4), to operate and maintain the System consistent with the System's specifications and the operation and maintenance requirements specified by the designer and any specified by the Department;

ii. Contains procedures for notification to the Department and the local board of health within five days of knowledge of a System failure or alarm event and for corrective measures to be taken immediately;

iii. Provides the name of an operator, which must be a Massachusetts certified operator if one is required by 257 CMR 2.00, that will operate and monitor the System. The operator must operate and inspect Systems installed at single family homes every six months and anytime there is an alarm event and all other Systems at least every three months and anytime there is an alarm event.

6. The System owner shall at all times have the System properly operated and maintained in accordance with this Approval, the designer's operation and maintenance requirements and the Company's approved procedures and sampling protocols. The System owner shall notify the Department and the local approving authority in writing within seven days of a change in the operator.

7. The System owner shall provide a copy of this Approval, prior to signing of a purchase and sales agreement for the facility served by the System or any portion thereof, to the proposed owner. Any and all instruments of transfer and any leases or rental agreements shall include as an exhibit attached thereto and made a part thereof a copy of this Approval for the System. The System owner shall send a copy of such written notification(s) to the local approving authority within 10 days of such notice being given.

8. Effluent from the innovative treatment unit discharging from a single family home shall be field tested in accordance with the Department's INSPECTION AND SAMPLING IN TITLE 5 I/A SINGLE FAMILY HOME REMEDIAL AND GENERAL USE TREATMENT SYSTEMS WITH DESIGN FLOWS LESS THAN 2000 GALLONS PER DAY, dated January 1, 2006. Effluent from all other facilities shall be at a minimum tested quarterly for the following parameters: pH, BOD_5, and TSS. The operator shall at each site visit conduct an inspection, using the Company's technology checklist, of the filter system, pumps and in the disposal area where the System is installed for signs of breakout or dampness. When quarterly sampling and inspection are required after one year of sampling and inspection and at the written request of the System owner, the Department may reduce the monitoring and reporting requirement.

9. Prior to the issuance of a Certificate of Compliance for the System, the System owner shall record and/or register in the appropriate Registry of Deeds and/or Land Registration Office, a Notice disclosing the existence of the alternative System subject to this Approval on the property. If the property subject to the Notice is unregistered land, the Notice shall be marginally referenced on the owner's deed to the property. Within 30 days of recording and/or registering the Notice, the System owner shall submit the following to the local approving authority: (i) a certified Registry copy of the Notice bearing the book and page/instrument number and/or document number; and (ii) if the property is unregistered land, a Registry copy of the owner's deed to the property, bearing the marginal reference.

10. By January 31st of each year for the previous year, the System owner shall submit to the approving authority all data collected in accordance with item 8, above, and an O&M

checklist and a technology checklist, completed by the System operator for each inspection performed during the previous calendar year. A Copy of the System checklist is attached to this approval.

VI. Conditions Applicable to the Company

1. By January 31st of each year, the Company shall submit a report to the Department, signed by a corporate officer, general partner or Company owner that contains information on the System, for the previous calendar year. The report shall state: the number of units of the System sold for use in Massachusetts including the installation date and date of start-up during the previous year; the address of each installed System, the owner's name and address, the type of use (e.g. residential, commercial, school, institutional) and the design flow; and for all Systems installed since the date of issuance of this Approval, all known failures, malfunctions, and corrective actions taken and the address of each such event.

2. The Company shall notify the Director of the Watershed Permitting Program at least 30 days in advance of the proposed transfer of ownership of the technology for which this Approval issued. Said notification shall include the name and address of the proposed new owner and a written agreement between the existing and proposed new owner containing a specific date for transfer of ownership, responsibility, coverage and liability between them. All provisions of this Approval applicable to the Company shall be applicable to successors and assigns of the Company, unless the Department determines otherwise.

3. The Company shall make available, in print and electronic format, the installation and maintenance manuals to System owners, operators, designers and installers of the System.

4. The Company shall institute and maintain a training program in the proper installation of its System in accordance with their installation manual and provide a training course at least annually for prospective installers. The Company shall certify that installers have passed the Company’s training qualifications, maintain a list of trained installers, submit a copy to the Department, and update the list annually. Updated lists shall be forwarded to the Department.

5. The Company or its designee shall conduct an intended use review of the System prior to the sale of any nonresidential unit or System with a design flow of 2,000 gpd or greater to ensure that the proposed use of the System is consistent with the unit’s capabilities.

6. The Company shall furnish the Department any information that the Department requests regarding the System, within 21 days of the receipt of that request.

7. The Company shall include copies of this Approval and the procedures and protocol described in Section V (3) with each System that is sold. In any contract executed by the Company for distribution or re-sale of the System, the Company shall require the distributor or re-seller to provide each purchaser of the System with copies of this Approval and the procedures and protocol described in this section.

8. The Company shall comply with 310 CMR 15.000 and all Department policies and guidance that apply and as they may be amended from time to time.

9. If the Company wishes to continue this Approval beyond its expiration date, the Company shall apply for and obtain a renewal of this Approval. The Company shall submit a renewal application at least 180 days before the expiration date of this Approval, unless written permission for a later date has been granted in writing by the Department**.** This Approval shall continue in force until the Department has acted on the renewal application

VII. **Reporting**

1. All notices and documents required to be submitted to the Department by this Approval shall be submitted to:

Director
Watershed Permitting Program
Department of Environmental Protection
One Winter Street - 6th floor
Boston, Massachusetts 02108

VIII. **Rights of the Department**

1. The Department may suspend, modify or revoke this Approval for cause, including, but not limited to, non-compliance with the terms of this Approval, non-payment of the annual compliance assurance fee, for obtaining the Approval by misrepresentation or failure to disclose fully all relevant facts or any change in or discovery of conditions that would constitute grounds for discontinuance of the Approval, or as necessary for the protection of public health, safety, welfare or the environment, and as authorized by applicable law. The Department reserves its rights to take any enforcement action authorized by law with respect to this Approval and/or the System against the owner, or operator of the System and/or the Company.

IX. **Expiration Date**

1. Notwithstanding the expiration date of this Approval, any System sold and installed prior to the expiration date of this Approval or any continuation of this Approval, that is approved, installed and maintained in compliance with this Approval (as it may be modified) and 310 CMR 15.000, may remain in use unless the Department, the local approving authority, or a court requires the System to be modified or removed, or requires discharges to the System to cease.